

WHAT IS CLAIMED:

- 1 1. A method of burn-in testing an electronic device, comprising:
2 attaching the device to a burn-in board;
3 placing a thermally conductive sheet atop the device such that the thermally
4 conductive sheet contacts the device;
5 inserting the burn-in board with the device and the thermally conductive sheet into a
6 chamber, wherein the environment within the chamber is controllable;
7 applying current to the device; and
8 controlling the environment within the chamber.
- 1 2. The method of claim 1, wherein the thermally conductive sheet has at least the
2 thermal conductivity of aluminum.
- 1 3. The method of claim 1, wherein the thermally conductive sheet is composed of
2 aluminum.
- 1 4. The method of claim 1, wherein the thermally conductive sheet is composed of
2 copper.
- 1 5. The method of claim 1, wherein the thermally conductive sheet has dimensions
2 configured to have a top surface area greater than that of a sheet that has a flat top surface.
- 1 6. The method of claim 1, wherein a portion of the thermally conductive sheet that is in
2 contact with the device is configured to have a greater contact area with the device than a
3 sheet that has a flat bottom surface.
- 1 7. The method of claim 1, further comprising:
2 sending at least one test signal to the device;
3 receiving data from the device; and
4 analyzing the data received from the device.
- 1 8. The method of claim 1, wherein a second thermally conductive sheet is located
2 beneath the burn-in board such that the second thermally conductive sheet is separated from
3 the burn-in board by an electrically insulating but thermally conductive sheet.

- 4 9. The method of claim 8, wherein the electrically insulating but thermally conductive
5 sheet is composed of silicon rubber impregnated with aluminum oxide.
- 6 10. The method of claim 8, wherein the device is attached to the burn-in board via a
7 socket that includes an electrically insulating but thermally conductive slug that contacts
8 both the bottom surface of the device and the top surface of the burn-in board.
- 9 11. The method of claim 10, wherein the slug is composed of silicon rubber
10 impregnated with aluminum oxide.
- 11 12. The method of claim 1, wherein a plurality of electronic devices are burn-in tested.
- 1 13. A method of burn-in testing a plurality of electronic devices, comprising:
2 attaching the plurality of devices to a burn-in board;
3 placing a thermally conductive sheet atop the plurality of devices such that the
4 thermally conductive sheet contacts the devices;
5 inserting the burn-in board with the plurality of devices and the thermally
6 conductive sheet into a chamber, wherein the environment within the chamber is
7 controllable;
8 applying current to each of the devices; and
9 controlling the environment within the chamber.
- 1 14. The method of claim 13, wherein a second thermally conductive sheet is located
2 beneath the burn-in board such that the second thermally conductive sheet is separated from
3 the burn-in board by an electrically insulating but thermally conductive sheet.
- 4 15. The method of claim 14, wherein the device is attached to the burn-in board via a
5 socket that includes an electrically insulating but thermally conductive slug that contacts
6 both the bottom surface of the at least one of the devices and the top surface of the burn-in
7 board.
- 8 16. An apparatus for testing an electronic device, comprising:
9 a burn-in board to which the device may be attached;
10 a thermally conductive sheet that may be positioned atop the device such that the
11 thermally conductive sheet contacts the device;

12 a controlled-environment chamber; and
13 a current source that applies current to the device.

1 17. The apparatus of claim 16, wherein the thermally conductive sheet has at least the
2 thermal conductivity of aluminum.

1 18. The apparatus of claim 16, wherein the thermally conductive sheet is composed of
2 aluminum.

1 19. The apparatus of claim 16, wherein the thermally conductive sheet is composed of
2 copper.

1 20. The apparatus of claim 16, wherein the thermally conductive sheet has dimensions
2 configured to have a top surface area greater than that of a sheet that has a flat top surface.

1 21. The apparatus of claim 16, wherein a portion of the thermally conductive sheet that
2 is in contact with the device is configured to have a greater contact area with the device than
3 a sheet that has a flat bottom surface.

1 22. The apparatus of claim 16, further comprising:
2 a test signal generator that sends at least one test signal to the device;
3 a test signal receiver that receives data from the device; and
4 a test signal analyzer that analyzes the data received from the device.

1 23. The apparatus of claim 16, further comprising a second thermally conductive sheet
2 located beneath the burn-in board such that the second thermally conductive sheet is
3 separated from the burn-in board by an electrically insulating but thermally conductive
4 sheet.

5 24. The apparatus of claim 23, wherein the electrically insulating but thermally
6 conductive sheet is composed of silicon rubber impregnated with aluminum oxide.

7 25. The apparatus of claim 23, further comprising:
8 a socket for attaching the device to the burn-in board; and
9 an electrically insulating but thermally conductive slug inserted through the socket

10 such that the slug contacts both the bottom surface of the device and the top surface of the
11 burn-in board.

12 26. The apparatus of claim 23, wherein the slug is composed of silicon rubber
13 impregnated with aluminum oxide.

14 27. The apparatus of claim 16, wherein the burn-in-board is configured so that a
15 plurality of electronic devices may be mounted on the burn-in-board, and the thermally
16 conductive sheet is configured so that the thermally conductive sheet contacts the plurality
17 of electronic devices.

1 28. The apparatus of claim 16, further comprising at least one device for biasing the
2 thermally conductive sheet against the electronic device.

1 29. An apparatus for testing a plurality of electronic devices, comprising:
2 a burn-in board to which the plurality of devices may be attached;
3 a thermally conductive sheet that may be positioned atop the plurality of devices
4 such that the thermally conductive sheet contacts the devices;
5 a controlled-environment chamber; and
6 a current source that applies current to the devices.

7 30. The apparatus of claim 29, further comprising a second thermally conductive sheet
8 located beneath the burn-in board such that the second thermally conductive sheet is
9 separated from the burn-in board by an electrically insulating but thermally conductive
10 sheet.

11 31. The apparatus of claim 30, further comprising:
12 sockets for attaching the devices to the burn-in board; and
13 electrically insulating but thermally conductive slugs inserted through the sockets
14 such that a slug contacts both the bottom surface of the device mounted in the socket and
15 the top surface of the burn-in board.